Contribution ID: **719** Type: **Poster**

The studying of Soil Gas Radon Probe coupled with RAD7 to identify Active Faults

Tuesday 22 May 2018 15:45 (15 minutes)

A soil gas radon probe with a radon detector (RAD7) were studied and developed for investigating radon irregularity to determine the location of active faults which can result in earthquakes. The 2 types of gas probe (A and B) were designed with the diameter of 1, 2, 1.7, 2.5, and 4.5 cm and the length of 50, 100, and 150 cm to embed into the soil. These probe were taken to test with the 27 sets of operation parameters of RAD7 to determine the appropriate operation mode. The results showed that the probe A which has a diameter of 1 cm and a length of 100 cm with the RAD7 operation parameters of "Mode: Auto, Pump: Auto, Tone: Chime"had the highest radon sensitivity with the radon concentration of 15,693.75 ± 125.275 Bq/m3. Then, the probe B which has a diameter of 1.0 cm and a length of 150 cm with the RAD7 operation parameters of "Mode: Normal, Pump: Grab, Tone: Off"was the second best radon sensitivity with the radon concentration of 14,251.56 ± 119.38 Bq/m3. These results indicated that the developed gas probe can be used to investigate the radon irregularity to determine the location of active faults which can result in earthquakes.

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Session Classification: A014: Environment (Poster)

Track Classification: Environmental Physics, Atmospheric Physics, Geophysics and Renewable Energy